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AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW,
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ARIP(BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ,
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LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI(BF,
BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,
NE, SN, TD, TG)

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(72) 发明人; 及

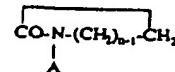
(75) 发明人/申请人(仅对美国): 杨桂生(YANG, Guisheng) [CN/CN]; 解廷秀(XIE, Tingxiu) [CN/CN]; 中国上海市闵行区北松路800号, Shanghai 201109 (CN).

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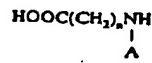
本国际公布:
— 包括国际检索报告。
所引用双字母代码和其它缩写符号, 请参考刊登在每期PCT公报期刊起始的“代码及缩写符号简要说明”。

(54) Title: TOUGHENED NYLON, THE PROCESS OF PREPARING IT AND ITS USE

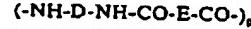
(54) 发明名称: 增韧尼龙、其制备方法及用途



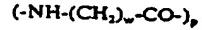
(I)



(I')



(II)



(III)



(IV)

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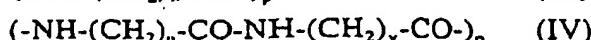
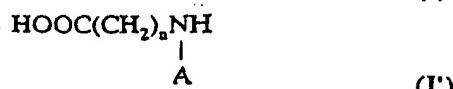
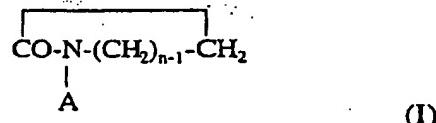
(57) Abstract: The present invention discloses a toughened nylon comprising base nylon and long-chain nylon, wherein the base nylon is formed by homopolymerizing or copolymerizing cyclic lactam monomers or its corresponding aminoacids in the presence of the long-chain nylon, and said cyclic lactams have a structure represented by formula (I) and its corresponding aminoacids have a structure represented by formula (I'), where in the formula (I) and (I'), A is H or an alkyl having 1-8 carbon atoms, 3 ≤ n ≤ 11; wherein the long-chain nylon is selected from those nylons which have recurring units of formula (II), (III) or (IV), where in the formula (II), D represents -(CH₂)_x, optionally substituted by C₁₋₄alkyl; E represents -(CH₂)_y, or phenylene, 5 ≤ u ≤ 34, 5 ≤ v ≤ 34, and u ≠ v; and wherein the amount of long-chain nylon used accounts for 2 to 45 weight percent of total weight of the toughened nylon, and the toughened nylon has a good interfacial bonding and has only one melting peak measured by differential scanning calorimetry analysis. Also discloses the process of preparing it and its use.

[见续页]



(57) 摘要

公开了一种增韧尼龙，它包括基体尼龙和长链尼龙，所述基体尼龙由环状内酰胺单体或其相应的氨基酸均聚或共聚而成，所述环状内酰胺具有式(I)所示结构，其相应的氨基酸具有式(I')所示结构，式(I)和式(I')中，A是H或者具有1-8个碳原子的烷基， $3 \leq n \leq 11$ ；所述长链尼龙是选自具有式(II)、(III)或(IV)所示重复单元的尼龙，式(II)中，D表示 $-(CH_2)_x-$ ，其中的H可任选地被C₁₋₄烷基取代；E表示 $-(CH_2)_y-$ 或者亚苯基，其中的H可任选地被C₁₋₄烷基取代， $4 \leq x \leq 34$ ， $4 \leq y \leq 34$ ，式(III)中， $7 \leq w \leq 34$ ，式(IV)中， $5 \leq u \leq 34$ ， $5 \leq v \leq 34$ ，且u≠v，所述长链尼龙的用量占增韧尼龙总重量的2-45%，该增韧尼龙有良好的界面结合，用差示扫描量热法测得只有一个熔融峰。还公开了该增韧尼龙的制备方法及用途。



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2004/000373

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 C08L77/00, C08G69/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

IPC C08G69, C08L77,

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP5 - 345856 A (TOYOBOKK) 27. December 1993(27. 12. 1993)	1-10
A	US5242733 A (E. I. DU PONT DE NEMOURS & Company) 07. September 1993 (07. 09. 1993)	1-10
A	JP11 - 080542 A (EMS-INVENTA AG) 26. March 1999(26. 03. 1999)	1-10
A	JP7 - 324226 A (ASAHI KASEI KOGYO KK) 12. December 1995(12. 12. 1995)	1-10

 Further documents are listed in the continuation of Box C. See patent family annex.

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"P" document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

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11 · AUG 2004 (11 · 08 · 2004)

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19 · Aug 2004 (19 · 08 · 2004)

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2004/000373

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 C08L77/00, C08G69/02
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

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Minimum documentation searched (classification system followed by classification symbols)

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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

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A	JP7 - 324226 A (ASAHI KASEI KOGYO KK) 12. December 1995(12. 12. 1995)	1-10

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"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&"	document member of the same patent family

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100088 Beijing, China
Facsimile No. 86-10-62019451

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国际检索报告
关于同族专利的信息

国际申请号
PCT/CN2004/000373

检索报告中引用的专利文件	公布日期	同族专利	公布日期
JP5 - 345856 A	27. 12. 1993	无	
US5242733 A	07. 09. 1993	CA2048352 A EP0470614 A AU8169891 A US5155178 A JP6279674 A DE69106622 E EP0885930 A1 DE19725617 A1 US2002128377 A1	09.02.1992 12.02.1992 13.02.1992 13.10.1992 04.10.1994 23.02.1995 23.12.1998 24.12.1998 12.09.2002
JP11 - 080542 A	26. 03. 1999		
JP7 - 324226 A	12. 12. 1995	无	